

Spring 2011

The Quarterly Hail

National Weather Service - Hastings, Nebraska

Volume 1, Issue 1

Notes From the Meteorologist In Charge

Welcome to the inaugural issue of "The Quarterly Hail". I am excited to see this publication come to fruition. I want to thank my staff for hatching the idea and following through with the labor and energy needed to make this a publication worthy of its readers. I hope you enjoy this publication and provide the editors your comments and constructive criticism. It is through your input that this publication will become a success and include information that you care about.

My passions have always been rooted in service to others. I believe the customer knows best and I work passionately to find out what our customer's needs are so we can find ways to meet those requirements. I believe I have the most talented and dedicated staff of professionals that exist in the NWS working with me and **for you!** They share my vision of customer service and I am proud to say they work hard and regularly sacrifice to meet our ever increasing customer demands. They rarely complain, instead they often ask, how can we do better? I don't know if you noticed, but in the weather business we are wrong every once in a while (laugh here). Seriously, our goal is to learn from our mistakes and our successes. To that end, the staff frequently reviews these events to see how we can do better next time.

I am regularly awed by the work that our volunteers give us. Without our volunteers, we would not be able to meet our mission. So I want to extend a hearty **THANK YOU** to all the Cooperative Observers and weather spotters that give their time and talents to our cause of protecting life and property.

I believe very strongly in the saying "you will never work a day in your life if you do what you love". I am so blessed to get paid for doing what I love and for being given the opportunity to work with the dedicated professionals and volunteers that work for WFO Hastings, Nebraska.

In summary, I and my staff thank you for the opportunity to serve you. We are humbled and blessed at the opportunity to serve you and promise to work hard to meet your needs. We wish to extend our heartfelt thanks for your volunteerism, partnership and sacrifice for your neighbor's safety. We truly work together for a noble cause and together we are very successful. Please, read on and enjoy this first edition of "The Quarterly Hail"!

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Special Points of Interest:

- *What's the difference between a Watch & a Warning?*
- *Find out the most common time for Ice Jam Flooding*
- *Meet our newest Coop Observers*
- *Are above, below or near normal temperatures & precipitation expected this Spring?*

Cooperative Observer Awards and New Members

Marla Doxey, *Data Acquisition Program Manager*

We would like to congratulate several of our COOP observers for their extensive support of the program. Charlene Nott of Elwood received the prestigious **John Companius Holm Award**. This award is the second highest honor given to our cooperative weather observers, honoring cooperative observers for outstanding accomplishments in the field of meteorological observations. No more than 25 Holm awards are given annually and the certificate is signed by the Administrator of the National Oceanic and Atmospheric Administration (NOAA).

Other awards presented in 2010 include:

10 yrs length of service - R.G. Marshall (Loup City, NE) · Marlene Einspahr (Arcadia, NE) · Dean L. Reinsch and Kurt Phillipi (Bruning, NE)

15 yrs length of service - Donna & James Menke (Nelson, NE) · Marcus & Rhea L Kemper (Logan, KS)

25 yrs length of service - Mary Travis (Riverdale, NE)

30 yrs length of service - Dennis Keim (Elm Creek, NE) · Barbara Baca (Wilsonville, NE)

We have added a few new faces to our COOP family, please welcome

- Troy Moser (Cawker City, KS) - reporting precipitation since April
- Julia Carlson (Franklin, NE) - reporting temperatures and precipitation since September
- Andy Zareck (Genoa, NE) - taking river measurements since June

Congratulations and Welcome!!!!

Ice Jam Flooding - *Jeremy Wesely, Lead Forecaster*

Ice jam flooding is a typical hydrological concern during the early spring, typically from February into March.

There are several factors that can enhance the threat of ice jam flooding. For instance, ice jam flooding is more likely when you have an abnormally cold winter that allows the river ice to get very thick, followed by a rapid and prolonged warm up during the early spring. A quick and lasting warming trend will usually get much of the river ice to break up at around the same time. This helps to fill the river with many chunks of ice that can become jammed up at some point downstream where the river may narrow, turn, or have other obstructions within it that act to catch or slow the ice flows. In addition, a significant warm up after a prolonged cold period will often result in rapid snowmelt that may further worsen ice jam flooding. Although more unusual, a heavy rain event that coincides with ice covered rivers can also act to break up the ice and allow for the formation of possible ice jams downstream.



Ice jam flooding near the highway 39 bridge by Genoa (March 2010)

Typically ice forms on rivers during the coldest months of the year but results in little to no problems as the river water will usually continue to flow beneath the ice sheet. However, each spring the river ice sheets begin to melt and also break off into numerous irregular chunks that begin to flow downstream. These ice flows will occasionally converge and thicken to the point of becoming jammed up. Water is then forced to find a way around the ice jams and will spread into adjacent low lying areas near the river.

Ice jams are rather rare for most places, but there are a few spots like the Loup River near Genoa where ice jam flooding is a routine springtime occurrence. In fact, the river gauge on the Loup River near Genoa has indicated ice jam related flooding in 3 of the last 4 years. Other rivers that have been known to have ice jam related flooding on a more rare basis include the Platte, North Loup, and Middle Loup Rivers.

Spring Time is Severe Weather Awareness Time

Mike Moritz, Warning Coordination Meteorologist

Each year, every National Weather Service (NWS) office in the nation makes educating the public about the natural weather related hazards in their area one of the highest priorities. Along the Gulf Coast, hurricanes may be the focus, or the Rocky Mountains, it may be wildfires. Here in south central Nebraska and north central Kansas our focus is severe spring weather, primarily on high winds, large hail, heavy rain and tornadoes.

With an array of weather information sources available, we feel its important to reach directly to each of our 30 counties of warning responsibility.

One of the main methods we use is conducting severe weather awareness and storm spotter presentations in every county. We will discuss a variety of topics, including storm structure, proper reporting, radar and many others. All of the presentations begin at 6:30 P.M. and last 75 to 90 minutes and its your opportunity to learn and ask questions of a NWS warning and forecast meteorologist.

A schedule of presentations in March and April is included in this newsletter. Look it over and find the talk near your home. We hope you stop by and say "Hello."



Do you know the proper name of this cloud feature? If not, come to one of severe weather awareness presentations to learn more.

Watch vs. Warning: What's the difference?

With Spring severe weather just about upon us, it's helpful to review a couple of terms you will hear all the time the next several months: watch and warning. Despite the fact watches and warnings have been around for decades, there is still some confusion about just what they mean and how we should react. Here's what you need to know.

Severe Weather Watch:

- 4 to 8 hours in length and usually during the late afternoon and evening hours.

- Usually covers dozens of counties or multiple states.
- Most common watches are the **Tornado Watch** and the **Severe Thunderstorm Watch**.
- Continue normal activities but be ready to react if severe weather develops.

Severe Weather Warning:

- Most common warnings are the **Tornado Warning**, **Severe Thunderstorm Warning** and **Flash Flood Warning**.

- Threatening or potentially dangerous weather has been reported or is expected to occur.
- **Take action to protect yourself!** Threatening or potentially dangerous weather has been reported or is expected.
- Typically cover parts of 1 to 4 counties and is in effect for 30 to 60 minutes.

How Strong is a Tornado?



A tornado spins southwest of Hastings, NE on June 15, 2009.

Rating a tornado is both an art and a science. Ratings are rooted in the Enhanced Fujita (EF) Scale (right). NWS meteorologists base the rating on the damage done by the tornado to various types of structures. Based upon structural tests, a wind speed estimate can be made from the degree of damage done (superficial, total devastation, etc). Look for the EF Scale the next time you want to know how strong a tornado was.

EF 0	65-85 mph
EF 1	86-110 mph
EF 2	111-135 mph
EF 3	136-165 mph
EF 4	166-200 mph
EF 5	Over 200 mph

Severe Weather Awareness Presentation Schedule

All presentations begin at **6:30 P.M.** and are free and open to the public

Date	County	City	Location
March 1	Jewell	Mankato, KS	Jewell County Courthouse
March 2	Mitchell	Beloit, KS	NCK Tech College Union
March 3	Thayer	Hebron, NE	Courthouse Courtroom
March 7	Fillmore	Geneva, NE	Lions Club
March 8	Phelps	Loomis, NE	Community Building
March 9	Phillips	Phillipsburg, KS	Fire Station
March 10	Smith	Smith Center, KS	Srader Center
March 14	Polk	Shelby, NE	Fire Station
March 15	York	York, NE	4-H Building - Fairgrounds
March 15	Merrick	Central City, NE	HS Performing Arts Center
March 16	Dawson	Cozad, NE	Fire Station
March 17	Clay	Sutton, NE	Fire Station
March 21	Hamilton	Aurora, NE	Fire Station
March 22	Furnas	Beaver City, NE	Community Building
March 23	Gosper	Johnson Lake	Johnson Lake EMS Building
March 24	Buffalo	Kearney, NE	Ag Pavilion - Fairgrounds
March 28	Harlan	Alma, NE	Johnson Center
March 28	Howard	Elba, NE	Fire Hall
March 29	Adams	Hastings, NE	Zion Lutheran Church
March 30	Valley	Ord, NE	Fire Station
March 31	Hall	Grand Island, NE	City Hall - Council Chambers
April 4	Osborne	Osborne, KS	Osborne Public Library
April 4	Greeley	Spalding, NE	Fire Station
April 5	Kearney	Wilcox, NE	Lions Club Hall
April 5	Nuckolls	Nelson, NE	Fire Station
April 6	Nance	Fullerton, NE	Fire Station
April 7	Rooks	Plainville, KS	Fire Station
April 11	Sherman	Ashton, NE	Fire Station
April 12	Franklin	Franklin, NE	County Fairgrounds
April 13	Webster	Red Cloud, NE	Fire Station

Just GIS! - *Briona Chester, Meteorological Intern*

WHAT IS GIS????

GIS stands for Geographic Information System. In the simple sense, it is a map that provides an extensive amount of information. A GIS can help examine and solve problems related to location.

Examples would include the use of a GIS to determine the placement of a hospital in relation to the most populated areas, or determining the area affected

by a river if a large scale flood occurs. Some GIS's are used simply to show information.

Here at the National Weather Service in Hastings, we have several projects that we use to display weather information. One such project that is currently posted to our webpage is a plot of tornadoes by month from the year 1950 to 2010. These maps show each month, where tornadoes have occurred across the region.

Displaying this information by month, helps to show what months of the year our region is most likely to see tornadoes. For the month of February, no tornadoes have occurred in Nebraska; conversely, the months of May and June have the most intense amount of tornadoes occurring for the same time period.

Stay tuned to our newsletter and website for more GIS related developments!

Employee Spotlight - General Forecaster Scott Bryant

I was born and raised in Newton, Iowa, and graduated from Newton High School in 1997. After high school I attended Iowa State University, and received my Meteorology degree in 2001. Shortly after I accepted a position with WeatherData, Inc., a private weather forecasting company based out of Wichita, Kansas. In early 2006 I proudly accepted a position with the National Weather Service office in Hastings, Nebraska and today serve as a "Forecast Meteorologist", responsible for issuing forecasts, warnings and advisories. I have also become heavily involved with software development and maintenance. Much of the software I help maintain are not only responsible for ensuring data are received, but also ensures weather-related data and products are efficiently disseminated to the public, media and emergency management. I also enjoy public speaking and participating with outreach events, in particular severe weather awareness presentations every spring, as well as speaking to school students about the fascinating world of weather.



The only thing I cherish more than my position as a civil servant is my role as a husband, father, and family man. It should come as no surprise that much of my time outside of work is devoted to being with my family and raising my children. Some of my favorite activities outside of work include coaching my kids' sports teams, participating in church activities, running, and playing tennis.

Like so many of my colleagues, I have been fascinated by weather since I was very young. During my time as an elementary student, I assembled a chart of multiple-daily weather maps from the Des Moines Register and used them to illustrate the progression of weather features over the course of a week. When asked what sparked my curiosity in weather, I am reminded of a winter night when I was three or four and my father woke me in the middle of the night and took me to a window in the kitchen. As I looked outside I was amazed at the sight of very heavy snowfall accompanied by thunder and lightning! When the sun came up the following morning we found our entire neighborhood buried under more than a foot of snow. As I grew older my fascination with severe weather, tornadoes in particular, intensified as I followed thunderstorms across the middle Mississippi Valley, as well as the central and southern Plains. The most memorable severe weather episode I have witnessed in all my years of observing weather occurred on April 11, 2001. As a senior at Iowa State University I was part of a team that observed three separate tornadoes within a two-hour span, including one that touched down about a half mile north of our location!

Having lived here for five years, my family and I have found the people to be truly caring, generous and kind. I am honored to call each of you my neighbor, and I am extremely proud to be serving you, the people of South Central Nebraska and North Central Kansas.



Across

4. A bolt of atmospheric electricity
5. Can produce floods, high winds, lightning, hail and tornadoes
10. On average kills more people than lightning, hurricanes and tornadoes combined
11. Always monitor NOAA Weather _____ All Hazards for the latest weather information from your local National Weather Service
12. A term used to indicate that conditions are favorable for dangerous weather
13. An outdoor warning device

Down

1. Issued by the National Weather Service when dangerous weather is occurring or will occur
2. Precipitation in the form of ice balls
3. The study of weather
5. Is caused by the rapid expansion of heated air around a lightning bolt
6. A test of what to do in case of dangerous weather
7. Inches of fast moving water that can knock a person off of their feet
8. A prediction of future weather
9. Amount of fast moving water (in feet) that can sweep away a vehicle
12. Severe Thunderstorm _____ can exceed 100 mph and knock down trees and power lines

Spring Outlook Calls for a Dry Start and Near Normal Temperatures

	Average High/Low March 15	Average High/Low April 15	Average High/Low May 15	3-Month Total Average Rain (March-May)	Average Date of Last Freeze (32°)
Greeley	49° / 22°	62° / 33°	71° / 45°	8.50"	May 3
Central City	52° / 28°	65° / 39°	74° / 51°	9.41"	April 17
Kearney	49° / 24°	61° / 35°	70° / 48°	8.60"	April 29
Red Cloud	51° / 24°	64° / 36°	73° / 47°	8.50"	April 30
Smith Center	55° / 30°	67° / 41°	75° / 51°	8.25"	April 21
Plainville	53° / 27°	64° / 37°	72° / 49°	8.32"	April 23
Beloit	55° / 31°	66° / 41°	75° / 52°	8.75"	April 20

Explanation of the Spring Seasonal Outlook

The Spring Outlook calls for near normal temperatures and below normal precipitation. Sounds easy enough, but what does that REALLY mean? To understand this fully, we have to look at different elements of the forecast one-by-one.

Time Frame: The NWS considers the “Spring” season to be March, April and May. Despite differences from the astronomical seasons, the outlook reflects conditions expected in those three months.

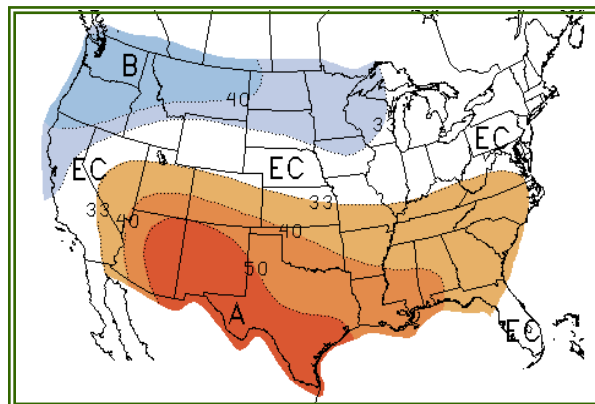
Temperature: The temperature outlook reflects the average temperature for the 3-month period as a whole. We tend to view temperatures in daily or monthly normals, but the 3-month outlook reflects the entire 90-day average temperature. **Red/Orange** colors represent “warmer” than normal. **Blue** colors represent “cooler” than normal. The outlook doesn’t reflect *how much* above (below) normal the temperature will be, but just that it will be above (below) normal.

Precipitation: Similar to temperature, the precipitation outlook depicts the total precipitation for the entire 3-month period, and is independent of individual days or months. **Green** colors represent “wetter” than normal and **brown** colors represent “drier” than normal. Again, it does not deal with *how much* above (below) normal the precipitation will be.

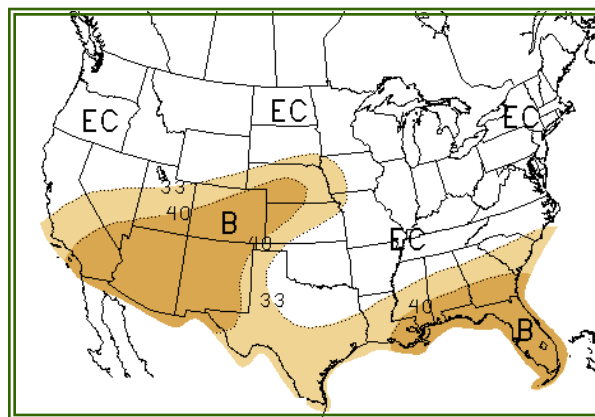
Finally, you will notice the letters “EC” on the maps and that they don’t correspond to any particular color. The letters “EC” represent “Equal Chances” of above, near or below normal conditions. This means there is no clear forecast trend to support an outlook of anything other than “normal” for the period. In this case, confidence is too low to support either warmer, colder, or near normal conditions more than any other condition.

To recap, the outlook for the Spring (March-April-May) is for near normal temperatures (3-month average) and **below normal precipitation** (3-month total).

Temperature Outlook for March, April and May



Precipitation Outlook for March, April and May



Find more information about the Climate Prediction Center at <http://www.cpc.ncep.noaa.gov/>

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Meet the Rest of the Staff at WFO Hastings

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